

Retail Business Performance Analysis Report

Tata Data Visualization Course

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Background

An online retail store has hired me as a consultant to review their data and provide insights that would be valuable to the CEO and CMO of the business. The business has been performing well, and the management wants to analyse what the major contributing factors are to the revenue so they can strategically plan for next year.

The leadership is interested in viewing the metrics from both an operations and marketing perspective. Management also intends to expand the business and is interested in seeking guidance into areas that are performing well so they can keep a clear focus on what's working. They would also like to view different metrics based on the demographic information that is available in the data.

A meeting with the CEO and CMO has been scheduled for next month and I need to draft the relevant analytics and insights that would help evaluate the current business performance and suggest metrics that would enable them to make the decision on expansion.

Task 1: Drafting Business Questions

To prepare for the meeting, I have drafted key questions that would likely be relevant to the CEO and CMO. These questions aim to uncover insights that matter most to each leader's perspective on business performance.

Questions for the CEO

1. What are the top-performing product categories in terms of revenue, and how have they contributed to the overall growth of the business?
2. Which geographical regions have demonstrated the highest sales growth, and where are there untapped opportunities for expansion?
3. What are the key operational challenges, such as delivery delays or product returns, that might be impacting customer satisfaction and operational efficiency?

4. How has the customer retention rate changed over time, and what are the main factors driving repeat purchases?

Questions for the CMO

1. Which marketing channels have delivered the highest ROI and contributed the most to customer acquisition and sales?
2. What demographic segments (age, gender, location, etc.) are driving the highest revenue, and how can targeted campaigns further optimize this?
3. How effective have promotions and discounts been in driving short-term sales, and what are the impacts on long-term customer value?
4. What are customers saying in reviews and feedback, and how can these insights be used to improve the customer experience and marketing strategies?

Task 2: Choosing the Right Visuals

In this task, I evaluated business scenarios and chose the most effective visual types to convey the intended insights clearly. The right visual format ensures accurate understanding and strategic decision-making by senior management. This task involved answering multiple-choice questions focused on selecting the appropriate chart for different data scenarios.

Task 3: Creating Effective Visuals

Based on cleaned data, I created meaningful visuals using Tableau to support key business queries from the CEO and CMO. Prior to visualization, data was cleaned using the following conditions:

- Removed entries where quantity was less than 1.
- Removed entries where unit price was less than \$0.

Tools Used: PowerBI, Excel (for cleaning)

Visualization 1: Monthly Revenue Trend for 2011 (CEO Request)

Type of Visual: Line Chart.

Description: This visualization displays the monthly revenue trend for the year 2011. The line chart helps identify seasonal peaks and dips in revenue, providing the CEO with insights into consumer buying patterns throughout the year. This can assist in forecasting demand for upcoming periods and planning inventory, marketing, and staffing accordingly.

Revenue Trend Analysis

To address your first question, I analyzed the revenue trends to determine if there is any seasonality in store sales. The data indicates that revenue remains relatively stable during the first eight months of the year, averaging approximately \$685K per month. A noticeable increase begins in September, where revenue jumps by 40% compared to August. This upward trend continues through November, peaking at \$1.5 million—the highest revenue point of the year.

Unfortunately, due to incomplete data for December, no conclusive insights can be drawn for that month. Overall, the analysis suggests a strong seasonal impact on retail sales, particularly during the last four months of the year.

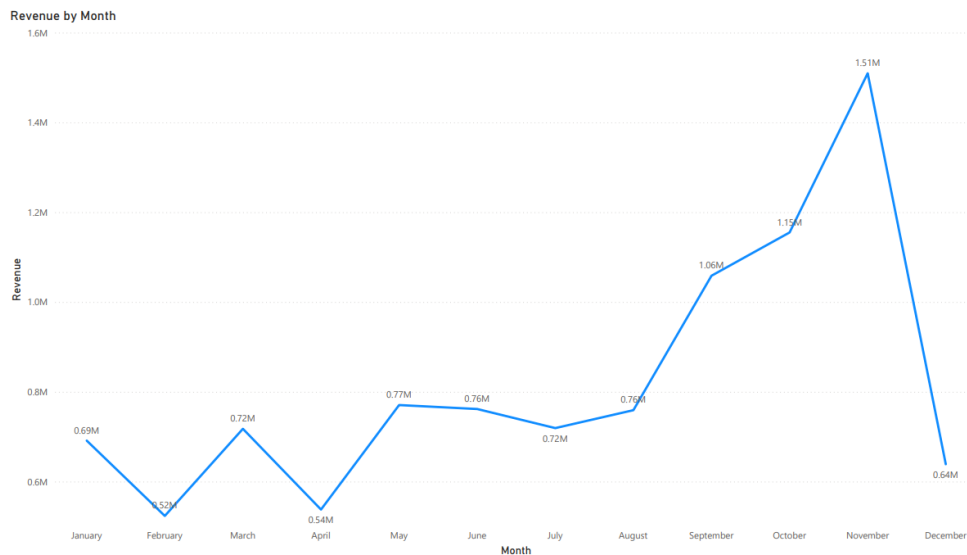


Figure 1: Monthly Revenue Trend for 2011

Visualization 2: Top 10 Revenue-Generating Countries (Excluding UK) with Quantity Sold (CMO Request)

Type of Visual: Dual-Axis Bar Chart (or Clustered Bar Chart).

Description: This chart shows the top 10 countries by revenue generated, excluding the UK. It also incorporates the quantity of products sold in each country. This combination enables the CMO to identify not just where revenue is high, but whether it is due to high volume or higher-priced items.

Growth Opportunity Analysis

The second visual highlights the performance of the top 10 countries with potential for growth. The United Kingdom has been excluded from this analysis, as it already experiences high demand and the current focus is on countries where demand can be further increased. The data reveals that countries such as the Netherlands, Ireland, Germany, and France are generating significant unit sales and revenue.

Based on this insight, I recommend prioritizing these markets and implementing targeted strategies to further strengthen our presence and capitalize on the growth opportunities they present.

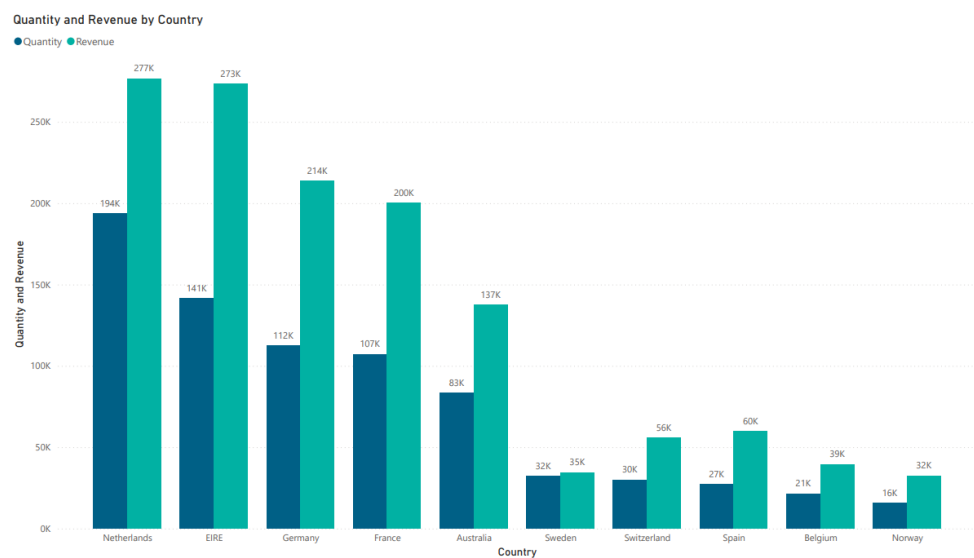


Figure 2: Top 10 Revenue-Generating Countries (Excluding UK)

Visualization 3: Top 10 Customers by Revenue (CMO Request)

Type of Visual: Horizontal Bar Chart.

Description: This chart ranks the top 10 customers based on total revenue contribution, helping the CMO recognize key customers who drive significant business. These customers can be prioritized for loyalty programs, exclusive offers, or personalized campaigns.

Customer Revenue Contribution Analysis

The third analysis focuses on the top 10 customers who have made the highest purchases from the store. The data indicates that the differences in revenue generated by these customers are relatively small. The top customer contributed only 17% more in revenue than the second-highest, suggesting that the business is not heavily dependent on a select few customers for the majority of its revenue.

This balanced distribution implies that customer bargaining power is low, placing the business in a strong and stable position.

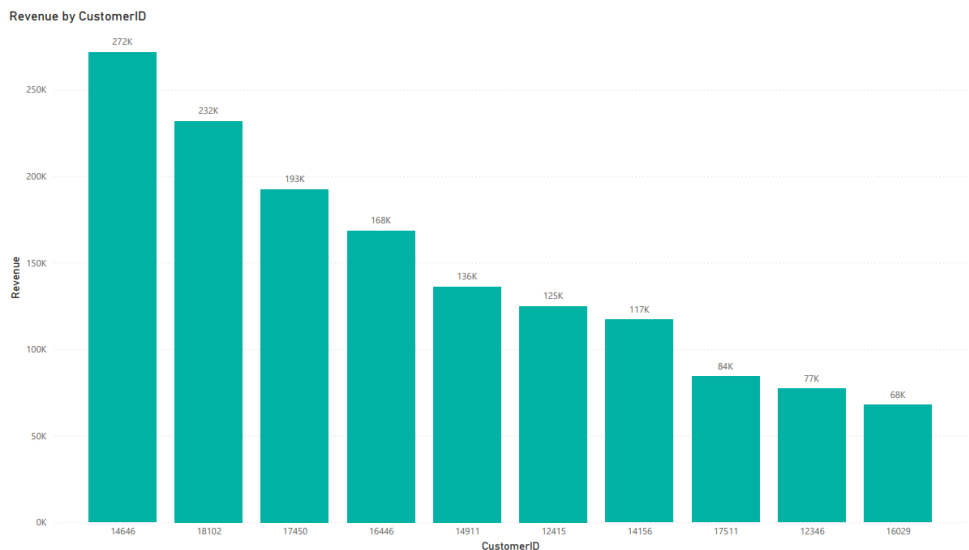


Figure 3: Top 10 Customers by Revenue

Visualization 4: Product Demand by Country (CEO Request)

Type of Visual: Filled Map / Choropleth Map.

Description: This map visualization highlights the countries with the highest product demand, excluding the UK. It provides a geographical view of market penetration and can inform the CEO's expansion strategy by pinpointing regions with untapped potential or existing strong performance.

Geographical Revenue Distribution

The final analysis is based on a map chart that visualizes revenue generation across different regions. The data shows that, aside from the UK, countries such as the Netherlands, Ireland, Germany, France, and Australia are contributing significantly to overall revenue. These regions present strong potential for growth, and increased investment in these markets could further boost demand for products.

The map also reveals that the majority of sales are concentrated in the European region, with minimal activity in the Americas. Additionally, there appears to be no demand in Africa, Asia, and Russia. This presents an opportunity to develop targeted strategies for expanding into these untapped markets, which could significantly enhance both sales revenue and profitability.

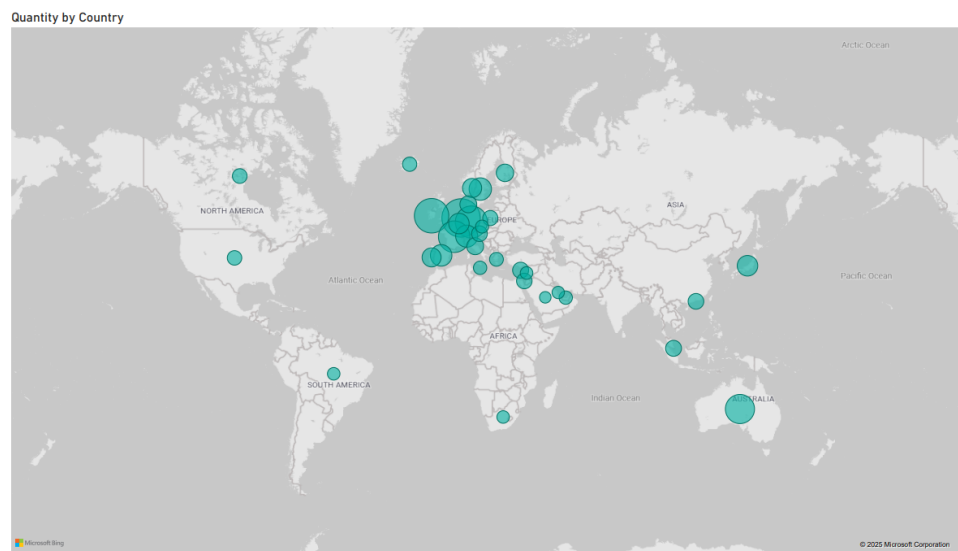


Figure 4: Product Demand by Country

Task 4: Communicating Insights and Analysis

Note: The following is the full presentation script intended to be delivered to the CEO and CMO. It includes all insights, context, and strategic recommendations based on the visualizations and analysis from previous tasks.

Introduction

Good Afternoon,

I'm Varsha Niharika, and I'm excited to share some insights about your online retail business. Thank you for providing the guiding questions — they helped frame the direction of

the analysis and understand the specific insights that are important for strategic decisions. I hope you find the analysis both compelling and helpful as you plan for growth and expansion.

Data Cleaning Process

To begin, I ensured the dataset was accurate and free from critical errors. I removed any records with negative quantities or unit prices, as these could skew the results. Cleaning this data was essential for reliable insights.

Insights and Analysis

For the first question, the CEO requested a time-series analysis of revenue for the year 2011 to identify seasonal trends. My analysis shows that for the first eight months, revenue remained relatively stable, averaging around \$685,000. Starting in September, there was a noticeable upward trend, with revenue increasing by over 40%. This upward momentum continued into October and peaked in November at nearly \$1.5 million — the highest point in the year. Due to incomplete data, December could not be analyzed. This indicates strong seasonality, with significant revenue increases in the final quarter, likely due to holiday sales.

The second visualization responds to the CMO's interest in identifying high-potential markets outside the United Kingdom. The analysis highlights the top 10 countries by revenue, showing both the revenue and quantity sold. Notable countries such as the Netherlands, Ireland, Germany, and France are leading in both metrics. These countries represent growth opportunities and could be prioritized in marketing and operational strategies to further boost sales.

The third analysis focuses on the top 10 customers by revenue. The visual presents customers in descending order, highlighting that the top customer only spent 17% more than the second-highest — indicating a relatively even distribution of revenue among top clients. This suggests the business is not overly reliant on a small group of customers, and the customer base is well-diversified, giving the company a strong market position with low customer concentration risk.

The fourth visual provides a geographical view of product demand (excluding the UK). It shows that countries like the Netherlands, Ireland, Germany, France, and Australia are strong markets for the company. Additionally, it reveals that most sales are concentrated in Europe, with limited presence in the Americas, and little to no activity in Asia, Africa, and Russia. This highlights an untapped market potential in these regions and supports the CEO's strategy for global expansion.

Conclusion and Reflection

Before I wrap up, I'd like to share what I've gained through this project and the course overall.

Working on this data visualization project has strengthened my ability to clean, transform, and analyze real-world data — which is a fundamental skill for any data professional.

I've gained hands-on experience using tools like Tableau and Power BI, and learned how to select the most appropriate visualizations based on the business context. This project taught me not just how to present data, but how to tell a clear, compelling story that can influence strategic decision-making.

Most importantly, this experience has helped me understand the perspective of business stakeholders like CEOs and CMOs — what kind of insights they value, and how to communicate data in a way that drives action. I've learned how to uncover patterns, identify trends, and make recommendations that can directly impact business performance.

From a career perspective, this course has been incredibly valuable. It has helped me build a solid foundation in data visualization, improved my analytical thinking, and equipped me with practical, job-ready skills that are crucial for a successful career in data analytics. Being able to work on real-world business problems and communicate insights effectively has boosted my confidence in pursuing roles in analytics, where such skills are in high demand.

Thank you again for your time and the opportunity to work on this meaningful project. I look forward to applying these skills in future roles and contributing to data-driven decision-making.

Certificate

Successfully completed and earned a certificate from the Tata Data Visualisation Virtual Internship via Forage.



Figure 5: Tata Data Visualisation Certificate